(14%)　1. Show the 14 Bravais unit cells. *(14%)*

(26%)　2. (a) Show the Face-centered Cubic (FCC) structure. *(6%)*

　　　　　(b) Show the slip system in FCC using Miller index. *(10%)*

　　　　　(c) Show the close-packed plane and direction in FCC and calculate the atomic packing factor (APF) for FCC. *(10%)*

(10%)　3. How to distinguish the single-crystalline Si and polycrystalline Si ?

(20%)　4. What are the factors you have to concern if you like to prepare the isomorphous binary alloy? (for example: Cu-Ni alloy)

(30%)　5. Show the iron-iron carbide (Fe-Fe$_3$C) phase diagram. *(10%)* Explain the eutectic reaction and eutectoid reaction in the Fe-Fe$_3$C phase diagram. *(20%)*